

REMARKS

This communication responds to the Office Action mailed on June 14, 2006. Claim 13 is amended, no claims are canceled, and no claims are added. As a result, claims 1-23 are now pending in this Application.

Objection to the Drawings

An objection was raised to the drawings under 37 CFR 1.84(u)(1). The drawings have each been amended to change the figure labels (e.g., FIG. 1) to include only capital letters. No new matter has been added, and the objection should now be resolved.

§112 Rejection of the Claims

Claim 13 was rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In particular, it was noted in the Office Action that it "... is unclear to the examiner what is meant by 'a memory cached by a non-volatile cache'. Data can be invalidated, as described in applicant's disclosure ...". Claim 13 was indicated to be allowable if rewritten to overcome this rejection, and if amended to include all of the limitations of the base claim and any intervening claims.

Claim 13 has been amended to conform to previous amendments made to independent claim 9, so as to clarify that cached information may be invalidated, and not for reasons related to patentability. Since, as will be shown below, independent claim 9 is nonobvious, claim 13 is also nonobvious. *See* M.P.E.P. § 2143.03. Therefore, this claim should be in condition for allowance as written, and the Applicant respectfully declines to amend claim 13 at this time.

§103 Rejection of the Claims

Claims 1-4, 6-12, 14, 16, 19, and 23 were rejected under 35 USC § 103(a) as being unpatentable over Moran et al. (U.S. 5,359,713; hereinafter "Moran") in view of Handy (The Cache Memory Book, Academic Press, 1998; hereinafter "Handy"). Claim 12 was also rejected under 35 USC § 103(a) as being unpatentable in view of Moran in view of Heemels (U.S.

5,603,331; hereinafter “Heemels”). Sarkozy was also mentioned in the first sentence of this rejection, but no features from Sarkozy were recited thereafter. The Applicant therefore assumes the inclusion of “Sarkozy” was a typographical error, and the rejection is based entirely on the combination of Moran and Heemels.

Claims 5, 17-18, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Moran in view of Lee et al. (U.S. 5,937,433; hereinafter “Lee”). Claim 15 was rejected under 35 USC § 103(a) as being unpatentable over Moran in view of Kozierok (PC Guide; hereinafter “PC Guide”). Claim 22 was rejected under 35 USC § 103(a) as being unpatentable over Moran and Lee, and further in view of PC Guide. First, the Applicant does not admit that Moran, Handy, Heemels, PC Guide, or Lee are prior art and reserves the right to swear behind these references in the future. Second, since a *prima facie* case of obviousness has not been established as required by M.P.E.P. § 2142, the Applicant respectfully traverses these rejections.

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d (BNA) 1596, 1598 (Fed. Cir. 1988). In combining prior art references to construct a *prima facie* case, the Examiner must show some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art that would lead an individual to combine the relevant teaching of the references. *Id.* The M.P.E.P. contains explicit direction to the Examiner that agrees with the *In re Fine* court:

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicants disclosure. *M.P.E.P.* 2142 (citing *In re Vaack*, 947 F.2d 488, 20 U.S.P.Q.2d (BNA) 1438 (Fed. Cir. 1991)).

An invention can be obvious even though the suggestion to combine prior art teachings is not found in a specific reference. *In re Oetiker*, 977 F.2d 1443, 24 U.S.P.Q.2d (BNA) 1443 (Fed. Cir. 1992). However, while it is not necessary that the cited references or prior art specifically suggest making the combination, there must be some teaching somewhere which provides the suggestion or motivation to combine prior art teachings and applies that

combination to solve the same or similar problem which the claimed invention addresses. One of ordinary skill in the art will be presumed to know of any such teaching. (See, e.g., *In re Nilssen*, 851 F.2d 1401, 1403, 7 U.S.P.Q.2d 1500, 1502 (Fed. Cir. 1988) and *In re Wood*, 599 F.2d 1032, 1037, 202 U.S.P.Q. 171, 174 (C.C.P.A. 1979)). The requirement of a suggestion or motivation to combine references in a *prima facie* case of obviousness is emphasized in the Federal Circuit opinion, *In re Sang Su Lee*, 277 F.3d 1338; 61 U.S.P.Q.2D 1430 (Fed. Cir. 2002), which notes that the motivation must be supported by evidence in the record.

No proper *prima facie* case of obviousness has been established because (1) combining the references does not teach all of the limitations set forth in the claims, (2) there is no motivation to combine the references, and (3) combining the references provides no reasonable expectation of success. Each of these points will be explained in detail, as follows.

Combining The References Does Not Teach All Claim Limitations.

First, with respect to independent claims 1, 9, 14, and 19, it is admitted in the Office Action that Moran “does not “specifically mention that recording an address of a write operation should be done prior to executing an operating system cache driver.” The Office goes on to assert that “it would have been obvious ... that this happens every time the computer 120 is booted or reset, because Moran explicitly states that one way of keeping track of access transactions (i.e., modifying data via writes, reads and erases) is by using an access transaction log. Note column 6, line 66, to column 7, line 14. By using such a log, the transactions and the addresses at which they occur are detected and recorded continuously at the time they occur so that if the system is later interrupted, reset or rebooted, and the boot drivers are initiated (including the cache drivers), such records in the log would have been made prior to boot, or else there would be no purpose to having such logs.” Since, as the Office admits, Moran does not explicitly teach the mode of operation claimed by the Applicant, the Office must either rely on inherency to reach this conclusion, or the Examiner is using personal knowledge.

If the Office relies on inherency then, as recited in MPEP § 2112, “... the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art,” citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). No such basis has been provided. Indeed, there is no technical reason why cache

drivers should be updated as part of the transaction process. For example, the assertion by the Office contradicts Moran's own specification, which teaches that cache functionality is specifically excluded from such operations:

“While these methods [of transaction support] provide for enhanced recovery after a crash, they do not function as a cache and may require special operations to use the non-volatile memory ... A means for enhancing the performance of accesses to secondary memory which includes the speed performance of main memory cache and the protection of synchronous writes against crashes is currently not available.” *See* Moran, col. 7, lines 20-45.

This is the same problem noted in the Background section of the Applicant's specification.

Since no inherent reason exists within Moran for recording addresses of write operations prior to executing an operating system cache driver, the Examiner appears to be using personal knowledge. The Examiner is thus respectfully requested to submit an affidavit as required by 37 C.F.R. § 1.104(d)(2). Otherwise, the only remaining conclusion is that Moran does not operate as claimed by the Applicant.

Handy, Heemels, PC Guide, and Lee also fail in this respect. Therefore, no combination of Moran, Handy, Heemels, PC Guide, and/or Lee can provide recording write operation addresses prior to “executing an operating system cache driver”, as claimed by the Applicant in independent claims 1, 9, 14, and 19, and a *prima facie* case of obviousness has not been established. As noted above, any claim depending from a nonobvious independent claim is also nonobvious under 35 USC § 103. *See* M.P.E.P. § 2143.03. Therefore, claims 2-8, 10-13, 15-18, and 20-23 are also nonobvious.

There Is No Motivation to Combine the References.

Handy's express concern with cache operational speed (e.g., “This book pertains only to CPU caches and not to disk caches. ... CPU caches operate at such high speed that hardware control must be used, and the cache itself must be implemented in static RAM.) teaches away from using the non-volatile cache technology of Moran. *See* Handy, pg. xv. Adding any one or more of Lee, Heemels, and PC Guide does nothing to negate the teaching of Handy.

References must be considered in their entirety, including parts that teach away from the claims. *See* MPEP ' 2141.02. The fact that references can be combined or modified does not

render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01.

In this case, Handy teaches that such a combination would *not* be desirable. Nothing in the assertions by the Office serve to overcome the express teaching of Handy, and the use of unsupported assertions in the Office Action does not satisfy the explicit requirements needed to demonstrate motivation as set forth by the *In re Sang Su Lee* court. Therefore, the Examiner appears to be using personal knowledge, and is again respectfully requested to submit an affidavit as required by 37 C.F.R. § 1.104(d)(2).

Combining the References Provides No Reasonable Expectation of Success.

Implementing a disk cache “in dynamic RAM (DRAM) using software control” as taught by Handy does nothing to promote recording write operation addresses prior to “executing an operating system cache driver”, as claimed by the Applicant. Since the Office admits this element is also missing from Moran, combining Handy and Moran provides no reasonable expectation of success with respect to the claimed order of operation. Lee, Heemels, and PC Guide also fail to add anything to this combination that leads to a reasonable expectation of success with respect to achieving the claimed order of operation.

In summary, none of the references teach recording write operation addresses prior to “executing an operating system cache driver,” as set forth in independent claims 1, 9, 14, and 19. No evidence has been entered in the record to support a need to combine the references (in fact the references teach away from the proposed combinations), and no reasonable expectation of success results from any combination. The requirements of M.P.E.P. § 2142 have not been satisfied, and a *prima facie* case of obviousness has not been established with respect to these independent claims. All dependent claims are also nonobvious, since claims depending from nonobvious independent claims are also nonobvious. It is therefore respectfully requested that the rejections of claims 1-23 under 35 U.S.C. § 103 be reconsidered and withdrawn.

CONCLUSION

The Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone the Applicant's attorney ((210) 308-5677) to facilitate prosecution of this Application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

ROBERT ROYER ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
Attorneys for Intel Corporation
P.O. Box 2938
Minneapolis, Minnesota 55402
(210) 308-5677

By / Mark V. Muller /
Mark V. Muller
Reg. No. 37,509